Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CH3009** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SYNTHETIC METHODOLOGY AND NATURAL PRODUCTS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Predict the coupling partner to synthesize the following compounds via Palladium catalyzed coupling reaction. Give mechanism. | CO1 | 15 |
| b. | Write a short note on Ullman coupling. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Explain the steps involved in Suzuki coupling reaction with example. Give the catalytic cycle. | CO1 | 10 |
| b. | Define Turn over number and turn over frequency. | CO1 | 5 |
| c. | Suzuki coupling is stereospecific reaction. Prove with suitable example. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | Predict the product with mechanism in the following reactions. | CO2 | 8 |
| b. | How will you synthesize the following compounds via multi component coupling reactions? | CO2 | 12 |
| (OR) | | | | |
| 4. | a. | Write a short note on the preparation and reactions of Gilman reagent. | CO2 | 8 |
| b. | How will you synthesize the following compounds via multi component coupling reactions? | CO2 | 12 |
|  |  |  |  |  |
| 5. | a. | Discuss any two methods to synthesize imidazole. Elaborate the reaction of imidazole with electrophiles. | CO3 | 12 |
| b. | Predict the products A,B and C in the following reaction with mechanism | CO3 | 8 |
| (OR) | | | | |
| 6. | a. | Explain any one method for the synthesis of **pyrazine** and **pyridazine** | CO3 | 10 |
| b. | Predict the product in the following reaction with mechanism | CO3 | 10 |
|  |  |  |  |  |
| 7. | a. | Using the modern instrumentation methods and chemical methods how will you elucidate the structure of terpenes | CO5 | 15 |
| b. | Calculate the index of Hydrogen deficiency for the following molecules  i) C10H16O ii) C10H19O | CO4 | 5 |
| (OR) | | | | |
| 8. | a. | Elucidate the structure of steroids using modern techniques. | CO4 | 15 |
| b. | Find out the empirical formula of a natural product with the following elemental analysis data  C% =78.86; H% = 12.90 | CO5 | 5 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain with neat diagram the structure of DNA. | CO5 | 10 |
| b. | Give the structure of any five vitamins and outline their importance | CO6 | 10 |